

8 November 1993

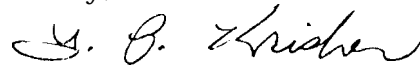
Mr. Jesse Hochstadt
Physics Today
335 East 45th Street
New York, NY 10017

Dear Mr. Hochstadt,

The following is my response to Mr. Silvertooth's letter (MS 6719L):

The JPL experiment is indeed similar in spirit to that of Cialdea, but *not* the earlier MIT experiments (which involved the comparison of laser cavities). However, there **are** three distinctions: 1) atomic frequency standards are used instead of lasers, 2) the frequency standards are separated by **sewed** kilometers instead of by only a small distance (< 2 meters), and 3) **greater sensitivity is possible**. Tyapkin's **conelusicms** were refuted by Mansouri and Sexl (see paper II).¹ The relevancy of the JPL experiment, and certain others, has been established in a detailed analysis performed by Will (which evidently went unread by Mr. Silvertooth, although it was cited in my previous letter).² We are **only** seeking funds sufficient to perform the experiment at its full potential; the **technology** has already been developed at JPL, under other programs. The **main** improvements planned are: 1) **replace** the hydrogen masers with more **stable** trapped ion standards, 2) **isolate** and correct sources of **systematic** error, and 3) allow the Earth to rotate for 100 **clays** or more to maximize the sensitivity of the experiment.

Sincerely,



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References

1. R. Mansouri and n., U. Sexl, Gen. Relativ. and Gravit. **S**, 497 (1977); **s**, 515 (1977); **S**, 809 (1977).
2. C. M. Will, Phys. Rev. D **45**, 403 (1992).